

CLAIM AMENDMENTS

Please amend the claims by canceling claim 2, amending claims 1, 3, 5, 6, 7, 11, and adding new claims 30-35, all without prejudice, as indicated on the following listing of all the claims in the present application after this Amendment:

1. (Currently amended) A system for varying the temperature of a wafer comprising:
a first temperature controlled plate, the first temperature controlled plate comprising first proximity pins, the first proximity pins configured to distance the wafer from the first temperature controlled plate;
a second temperature controlled plate comprising second proximity pins, the wafer located between the first and second temperature controlled plates, ~~and distanced~~ a distance from the second temperature controlled plate to the wafer established by the first and second proximity pins; and
an enclosure surrounding the first and second temperature controlled plates and the wafer, the enclosure comprising a gas input and output, the gas flowing from the input past the wafer and to the output.
2. (Canceled)
3. (Currently amended) The system of claim 1~~claim 2~~ wherein the proximity pins are moveable such that the distance ~~between~~ef the first and second temperature controlled plates ~~plate from the wafer~~ may be varied.
4. (Original) The system of claim 1 further comprising a flow distribution manifold configured to distribute the gas upon the wafer.
5. (Currently amended) The system of claim 4 wherein the flow distribution manifold comprises a plurality of laminar-flow paths, each of the plurality of laminar flow paths

~~path~~ comprising one a laminar flow element controlling the flow rate of said flow path, the laminar flow element providing gas to one gas passage that leads to the exterior of the flow distribution manifold.

6. (Currently amended) The system of claim 5 wherein the laminar flow element comprises a horizontal channel formed in a surface of a substrate and the gas passage extends to an opposing surface of the substrate.

7. (Currently amended) The system of claim 5 wherein each of the plurality of laminar flow paths further comprise a cavity such that any contaminants or solvents that may be present in the enclosure and that may enter the flow paths will accumulate in the cavity rather than in the laminar flow elements.

8. (Original) The system of claim 4 wherein the flow distribution manifold is in contact with the first temperature controlled plate, and wherein the gas distributed is at substantially the same temperature as the first temperature controlled plate.

9. (Original) The system of claim 8 wherein the first temperature control plate comprises flow channels and wherein the gas flows from the manifold and through the channels to the wafer.

10. (Original) The system of claim 1 further comprising a gas output flow regulator.

11. (Currently amended) A device for controlling the temperature of a wafer comprising:

a first temperature control element; ~~and~~

a second temperature control element;

a gas distribution system configured to distribute gas at different points about a surface of the wafer, the gas distribution system comprising a plurality of flow paths, each of the plurality of flow paths comprising a laminar flow element, the laminar flow paths formed as channels in a

surface of a plate that is in thermal contact with the second temperature control element, an individual laminar flow path extending along a plane that is parallel to the plane of the wafer;

wherein the wafer is located between the gas distribution system and the first temperature control element.

12. (Original) The device of claim 11 wherein the gas distribution system is temperature controlled thereby providing substantially uniform temperature distribution and gas flow distribution across the surface of the wafer.

13. (Original) The device of claim 11 further comprising an exhaust system configured to regulate the exhaust flow rate of the gas.

14. (Original) The device of claim 11 wherein the gas distribution system comprises one or more heating and cooling elements.

15. (Original) The device of claim 12 wherein the gas distribution system and the temperature control element can be adjusted to different temperatures in order to vary the temperature gradient within the device.

16. (Withdrawn) A method of conditioning a wafer having a first and a second side within a chamber, the method comprising:

heating or cooling the wafer from the first side;
heating or cooling the wafer from the second side;
applying gas to the first side of the wafer, the gas distributed through a plurality of passages such that the gas flow is substantially laminar.

17. (Withdrawn) The method of claim 16 further comprising heating or cooling the gas such that the gas is heated or cooled to substantially the same temperature as the first side of the wafer.

18. (Currently amended) A post exposure bake chamber comprising:

a first heating plate;
a second heating plate;

the first and second heating plates configured to heat a wafer placed between the plates, the wafer spaced from the first ~~and second~~ heating ~~plate~~plates by first proximity pins, the second heating plate spaced from the first heating plate by second proximity pins when the second heating plate is in a closed position, the second heating plate being more distant from the first heating plate when in an open position.

19. (Original) The post exposure bake chamber of claim 18 further comprising a flow control system having distributed gas flow paths and one or more flow control elements regulating the gas flow rate through the gas flow paths.

20. (Original) The post exposure bake chamber of claim 19 wherein the flow control system is in contact with the first heating plate such that the gas is heated by the first heating plate.

21. (Original) The post exposure bake chamber of claim 19 wherein the gas passes from the flow control system through passages in the first heating plate to the wafer.

22. (Original) The post exposure bake chamber of claim 19 wherein the flow control system comprises a flow channel plate, the one or more flow control elements formed in the flow channel plate.

23. (Original) A wafer conditioning chamber comprising:
a first means for changing the temperature of the wafer at a first side of the wafer;
a second means for changing the temperature of the wafer at a second side of the wafer;
and
a gas distribution means for distributing a gas at a controlled flow rate at a plurality of locations upon the first or second side of the wafer.

24. (Original) The wafer conditioning chamber of claim 23 wherein the gas temperature is manipulated by the first or second means for changing the temperature of the wafer.

25. (Original) The wafer conditioning chamber of claim 24 wherein the gas distribution means comprises flow control means for controlling the flow rate of the gas.

26. (Original) A system for varying the temperature of a wafer comprising:
a first temperature altering device;
a second temperature altering device, the wafer located between the first and second temperature altering devices; and
an enclosure surrounding the first and second temperature altering devices and the wafer, the enclosure comprising a gas input and output, the gas flowing from the input past the wafer and to the output, the system operable to vary a rate of closure of any of the first or second temperature altering devices or the enclosure to adjust the temperature of the wafer.

27. (Original) The system of claim 26 wherein the system is further operable to vary a rate of change of the temperature of the wafer by adjusting the rate of closure.

28. (Original) The system of claim 26 wherein the enclosure comprises an upper portion and a lower portion, and wherein the system is operable to vary a rate of closure of the upper or lower portion.

29. (Original) A device for controlling the temperature of a wafer within an enclosure having a first and second enclosing structures, the device comprising:
a temperature control element; and
a gas distribution system configured to distribute gas at different points about a surface of the wafer, the gas distribution system comprising a plurality of flow paths, and a laminar flow element,
wherein the wafer is located between the gas distribution system and the temperature control element; and

wherein the device is operable to adjust the rate of opening and closure of the enclosure by varying one or more rates of movement of the first or second enclosing structures.

30. (New) An apparatus that controls the temperature and environment of a wafer, comprising:

a lower temperature controlled plate below the wafer;
a gas distribution system extending above the wafer to deliver gas at a plurality of locations across a surface of the wafer; and
an upper temperature controlled plate above the wafer, the upper temperature controlled plate being movable with respect to the lower temperature controlled plate.

31. (New) The apparatus of claim 30 wherein the wafer is displaced from an upper surface of the lower temperature controlled plate by lower pins extending from the lower temperature controlled plate.

32. (New) The apparatus of claim 30 wherein a lower limit of movement of the upper temperature controlled plate is established by upper pins extending from the upper temperature controlled plate.

33. (New) The apparatus of claim 30 wherein the upper and lower temperature controlled plates are resistively heated plates.

34. (New) The apparatus of claim 30 wherein the upper and lower temperature controlled plates are chill plates.

35. (New) The apparatus of claim 30 wherein the speed of movement of the upper temperature controlled plate is controlled to achieve a desired temperature profile.